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**TOMAHAWK - A FORCE ACROSS THE SPECTRUM OF WAR**

by

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A paper submitted to the Faculty of the Naval War college in partial satisfaction of the requirements of the Department of Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

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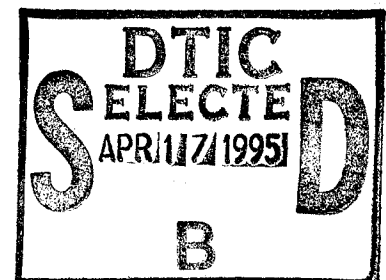
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## ABSTRACT OF

### TOMAHAWK - A FORCE ACROSS THE SPECTRUM OF WAR

The purpose of this paper is to examine the value of long-range precision weaponry systems, specifically Tomahawk cruise missiles, across the spectrum of warfare. Included in this examination will be the application of Tomahawk in support of some of the Principles of War and its potential contribution to escalation control/avoidance. The value of Tomahawk will be considered in relation to the social dimensions of strategy. A discussion of the inherent deterrent value of the system will lead into a look at the applicability of Tomahawk as a Flexible Deterrent Option and in Peace Enforcement operations. Finally, consideration will be given to the utility of Tomahawk in support of Strategic Interdiction operations. While Tomahawk, just as every other weapon system, does have some limitations, it has application in a wide variety of situations. Ultimately the purpose of this paper is to provide a mental review of some potential strategic and operational applications and implications of Tomahawk for those who monitor, evaluate and make decisions at the strategic and operational levels of warfare.

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## TABLE OF CONTENTS

CHAPTER	PAGE
I INTRODUCTION.....	1
II THE CONTEXT.....	3
United States National Security Strategy.....	3
Forward Presence and Crisis Response.....	4
How does Tomahawk enter the picture? .....	4
III STRATEGIC AND OPERATIONAL IMPLICATIONS AND APPLICATIONS.....	6
Principles of War.....	7
Offensive.....	7
Mass.....	7
Economy of Force.....	8
Surprise.....	9
Simplicity.....	9
Escalation Control/Avoidance.....	9
Political Palatability - The Social Dimension of Strategy.....	11
Deterrent Value and Coercive Diplomacy.....	12
Tomahawk in Peace Enforcement Operations.....	14
Strategic Interdiction - Another Role for Tomahawk....	14
IV CONCLUSIONS AND RECOMMENDATIONS.....	17
BIBLIOGRAPHY.....	19

## CHAPTER I

### INTRODUCTION

To those who watched the Desert Storm conflict (in early 1991) on Cable News Network (CNN), the strategic and operational value of long-range missile systems became excruciatingly clear. At times, the viability of the United States led coalition forces and the ultimate outcome of the war seemed to hang on every Iraqi Scud missile attack.<sup>1</sup> Conversely, the buoyant exuberation felt when watching the CNN footage of the nighttime Tomahawk launches and the battle damage assessment photographs displayed during the daily briefs served to remove any lingering doubts about the value derivable from such precision weapon systems.

To the educated military observer, the strategic and operational implications of Tomahawk go far beyond just the psychological value. While he was specifically addressing ballistic missile systems, Thomas Mahnken's comments are equally applicable to the tactical, operational and strategic value of Tomahawk:

On a tactical level, ballistic missiles allow states to strike distant targets quickly, with little warning, and with a high probability of penetration. On an operational level, the possession of ballistic missiles by hostile powers threatens to constrain U.S. influence within a theater, and may jeopardize the ability of the United States to carry out operations in the aid of allies. On a strategic level, the possession of such systems by regional powers -- in combination with their growing economic, military, and political

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<sup>1</sup> Kevin E. McHugh, "Ballistic Missile Defense: Putting a 'Roof' Over Our Forces In The Theater," Unpublished Research Paper, U.S. Naval War College, Newport, RI: 1994.

influence -- provides grounds for challenging the leadership of the United States on regional issues (emphasis added).<sup>2</sup>

Proper utilization of such a system supports the application of various principles of war and can help in escalation control/avoidance. From a public support perspective, the ability to place ordnance on target quickly and reliably without risking the death or capture of the pilots of manned aircraft is more politically correct and palatable. A public knowledge of the existence and capabilities of such systems and the U.S. willingness to use them creates a viable deterrent. Additionally, Tomahawk has potential for use as a Flexible Deterrent Option or in support of Peace Enforcement operations. Finally, one of the options open to an operational commander is to undertake strategic interdiction and Tomahawk is well suited to play a part in such an effort. Thesis: Tomahawk has application to a wide variety of operations including those having influence at the strategic and operational levels of warfare.

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<sup>2</sup> Thomas G. Mahnken, "Why Third World Space Systems Matter," Orbis, Fall 1991, p. 565.

## CHAPTER II

### THE CONTEXT

#### Guidance For A Changing World

The period from 1989 through the present has been filled with changes in the international balance of power unparalleled in recent history. The National Security Strategy (NSS) and National Military Strategy (NMS) provide the framework under which the United States will strive to participate in this new and challenging world order.

#### United States National Security Strategy

The Clinton administration published their NSS in July of 1994. It is entitled A National Security Strategy of Engagement and Enlargement.<sup>3</sup> The terms *engagement* and *enlargement* when compared to their Cold War predecessors of *collective defense* and *containment* clearly suggest a shift in thinking toward a more proactive role for the United States in the leadership of world affairs. While unilateral use of force is not ruled out, for purposes of international legitimacy and in support of enhancing a sense of world community, the United States would prefer to commit forces to combat only in the context of *alliances* and *coalitions*. In order for the United States to reasonably expect other nations to enter such alliances and coalitions with us, we must bring some special commitment and capabilities to the table. The

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<sup>3</sup> The White House, A National Security Strategy of Engagement and Enlargement (Washington: U.S. Govt. Print. Off., 1994).

military's role and commitment to this cause is clearly delineated in the NMS.

#### **Forward Presence and Crisis Response**

Over the past 45 years, the day-to-day presence of us forces in regions vital to US national interests have been key to averting crisis and preventing war. Our forces deployed throughout the world show our commitment, lend credibility to our alliances, enhance regional stability, and provide a crisis-response capability while promoting US influence and access.<sup>4</sup>

Accepting that *forward presence* and *crisis response* will likely remain as two of the four basic foundations of the NMS, *engagement* and *enlargement* are likely to result in even greater deployment of military forces in support of national goals. Included in the NMS are the *Strategic Principles* upon which the United States intends to build its national defense. The lists includes *Strategic Agility*, *Power Projection*, *Technological Superiority* and *Decisive Force*.<sup>5</sup>

#### **How does Tomahawk enter the picture?**

In view of the reduction of forces permanently based overseas, it is logical to assume that the naval forces will be task to fill an increasingly larger portion of United States national commitments overseas. This will align itself nicely with the requirements of the NMS since the navy in the course of normal operations is forward deployed and in position to support crisis response. Additionally, more and

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<sup>4</sup> Joint Chiefs of Staff National Military Strategy of the United States (Washington: U.S. Govt. Print. Off., 1992), p. 7.

<sup>5</sup> Ibid., pp. 8-10.



more cruisers, destroyers, and submarines are being either built or refitted to carry and launch Tomahawk. Thus, this forward deployed Tomahawk capability has prepositioned a force into theater which provides *Strategic Agility, Power Projection, Technological Superiority* and *Decisive Force*. Our current and potential allies, especially after monitoring Desert Storm, are well aware of the capabilities of this weapon system. In conclusion, Tomahawk's forward deployed ability to reliably place ordnance on target from great distances provides the *Strategic Agility, Power Projection, Technological Superiority* and, potentially, the *Decisive Force* required by the National Military Strategy and desired by potential alliance and coalition partners.

### CHAPTER III

#### STRATEGIC AND OPERATIONAL APPLICATIONS AND IMPLICATIONS

The first question or task confronting the operational commander is to determine what military conditions are necessary to achieve the respective strategic or operational goals.<sup>6</sup> Once these have been determined, the next challenge is to create the sequence of actions most likely to produce that condition. This leads into the decision process for determining how the resources of the force should be applied to create that sequence of actions. Finally, the commander must weigh the likely cost or risk to the Joint Force in performing that sequence of actions.<sup>7</sup> Depending upon the time, place and methodology in which the weapon is utilized, the synergism created can have an effect on the overall operation substantially greater than the physical destruction caused by the weapon itself. Long-range precision guided munitions such as Tomahawk should be considered not merely as ordnance on target, but as an exercise of force capable of having strategic or operational level impact. The following sections look at some of these larger than life influences that may drive the selection of Tomahawk as "the weapon of choice."

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<sup>6</sup> United States Naval War College, Joint Maritime Operations Syllabus 1994-1995, (Newport, RI: United States Naval War College, 1994), p. 35.

<sup>7</sup> Ibid., p. 10.

## Principles of War

The principles of war guide warfighting at the strategic, operational, and tactical levels. They are the bedrock of US military doctrine.<sup>8</sup>

While it is not possible to apply Tomahawk to all of the Principles of War, there are some that lend themselves to this connection.

**Offensive:** "The purpose of an offensive action is to seize, retain, and exploit the initiative."<sup>9</sup> Here, Tomahawk has a proven record. When Desert Storm commenced, many of the initial targets hit were assigned to the Tomahawk system. These targets included radar sites, electrical plants, communications towers, and command posts. Within the first 24 hours, 116 missiles were fired from nine ships. These missiles, with their 1,000 pound Bullpup warheads, clearly were part of establishing the Offensive.<sup>10</sup>

**Mass:** It is unlikely that any theater commander will enjoy having a sufficiently large inventory of Tomahawks to maintain the sustained, concentrated combat power that equates to Mass. What is possible is to utilize Tomahawk as an enabler - a means of shaping the battlefield - to ensure that Mass can be achieved. One example of this would be the utilization of Tomahawk to damage or destroy selected rail and road routes by

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<sup>8</sup> Joint Chiefs of Staff, Joint Publication 3-0, Doctrine for Joint Operations (Washington: Joint Chiefs of Staff, 1993), p. A-1.

<sup>9</sup> Ibid.

<sup>10</sup> Rick Atkinson, Crusade - the Untold Story of the Persian Gulf War, (Boston, MA: Houghton Mifflin Company, 1993), p. 37.

which the enemy would bring forces to bear in the battle. This could have a funneling effect - forcing the enemy to channel his troops and equipment through the limited number of access routes remaining operational.<sup>11</sup> Thus, by using Tomahawk to create chokepoints, the operational commander could more easily achieve mass by concentrating the effects of combat power at these places and times to achieve decisive results.

**Economy of Force:** "The purpose of the economy of force is to allocate minimum essential combat power to secondary efforts."<sup>12</sup> With current technology, Tomahawk is still a "fire and forget" weapon. Missions that may require alteration enroute or on-site still belong to manned aircraft. However, where there are valid targets that lend themselves to the capabilities of the system, Tomahawk may be the best means of applying force to that target. To some degree this is a question of weaponeering. But, when viewed in relation to the force that may be made available for use against other, more critical, targets, the decision takes on an *Economy of Force* importance.

**Surprise:** "The purpose of surprise is to strike the enemy at a time or place or in a manner for which it is unprepared."<sup>13</sup>

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<sup>11</sup> Ian O. Lesser, Interdiction and Conventional Strategy: Prevailing Perceptions, (Santa Monica, CA: RAND), pp. 17-18.

<sup>12</sup> Joint Chiefs of Staff, Publication 3-0, p. A-2.

<sup>13</sup> Ibid., p. A-3.

Tomahawk is not an overt system. The combination of a fairly small radar cross section combined with basically passive advanced guidance systems result in a fairly stealthy weapon. Additionally, since Tomahawk can be launched from far beyond the range of most enemy monitoring systems and approach its target by circuitous routes, *surprise* is clearly achievable in most circumstances.

**Simplicity:** Once the operational commander's Strike Warfare Officer has reviewed the mission library and made assignments, the follow-on process is very simple. The launch platform is tasked to execute a specific mission number. All of the data needed to guide the missile to the target is contained in that mission. The only independent decisions the launching platform has is where and when to launch to ensure weapon arrival at the desired time. Thus, the system has been designed to largely take the man out of the decision loop. This removes another element of uncertainty and makes Tomahawk a very simple asset to apply in an operational plan.

#### **Escalation Control/Avoidance**

One of the most critical decisions the operational commander has to make is whether or not to escalate the conflict. Understanding the utilities and dangers of escalation as well as its various forms is imperative to making a sound decision. Once the decision has been made to escalate the force applied, the next question is how to

achieve the desired results without losing control and creating an ever increasing level of conflict.

Tomahawk has some systemic advantages over other weapons when the goal is to place ordnance on target in a controlled escalation. The ability to surgically strike with great accuracy, thereby avoiding the likelihood of collateral damage, has great value. Whenever collateral damage occurs, especially when it includes civilian casualties, the societal reaction is greater - often being driven by emotion and the desire for retribution. Limiting such damage greatly increases the "legitimacy" of the attack and may allow military logic vice emotional need to drive the enemy's decision making process. Additionally, the more forces we place in the operations area, the greater our national commitment to the outcome. Manned aircraft or forces on the ground greatly increase our stake. Once these pilots and ground troops begin to take casualties, the scales can tip rapidly in a direction not supporting the commander's objectives. Using Tomahawk avoids this continuing human presence and the threat of friendly casualties. In this manner, it is a relatively non-escalatory offensive weapon and should be considered for use if the operational or tactical objective can be accomplished by the force that Tomahawk can bring to bear.

## Political Palatability - The Social Dimension of Strategy

This positive aspect of Tomahawk utilization is very similar to *Escalation Avoidance*. The primary difference is that the concern is for the effect that occurs on the homefront vice in the commander's operations area. Tomahawk is a quick and relatively clean weapon. The minimal likelihood of collateral damage when compared with other systems avoids the pangs of conscience that can erode national will and support for an ongoing operation. Finally, there are no friendly Prisoners of War or full body bags associated with the shooting down or crash of a Tomahawk. As the shift in our national commitment to UNISOM II in Somalia proved, the citizens of the United States have little palate for watching their spouses and children coming home in a box. This is not to say that the country will not make such a sacrifice if justified by a deep national commitment to the conflict based upon a clearly perceived threat to our national interest. However, as the United States carries out its commitment to engagement and enlargement, the potential for our involvement in future operations such as Somalia would seem likely. Thus, in those operations that do not tear at the heartstrings of the average United States citizen, this *social dimension of the strategy* can have a definitive effect upon the conduct and

outcome. Tomahawk may provide the ability to exert force without tripping the political sensitivities back home.<sup>14</sup>

### **Deterrent Value and Coercive Diplomacy**

As a world economic and military leader, the United States will find itself either inexorably drawn into situations that require either direct military involvement or placed into a position whereby it must utilize its conventional capabilities to deter conflict. Without the capacity and capability for an effective conventional option, the United States could find itself with no option at all.<sup>15</sup>

During Desert Shield, the United States poured a large military force into the operating area as an exercise in deterrence. Specifically, this represented a form of deterrence that has been termed by Alexander George as *Coercive Diplomacy* - "...the combined use of arms and diplomacy in order to induce an opponent to behave in a preferred way while remaining short of actual war."<sup>16</sup> However, to be effective, coercion must meet certain requirements.

Coercion requires two elements: a credible threat to inflict undesired costs if the threat is not complied with and a promise to withhold the punitive action if the threatened party agrees. Coercive diplomacy uses the threat of force in order to make a political point.<sup>17</sup>

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<sup>14</sup> Billy Nix, "Long Range Air Power and Standoff Weapons in Low-Intensity Conflict," in Low Intensity Conflict and Modern Technology ed. David J. Dean (Maxwell Air Force Base, AL: Air University Press, 1986), p. 144.

<sup>15</sup> Nix, p. 140.

<sup>16</sup> Alexander L. George, as referenced in Stephen J. Cimbala, Force and Diplomacy in the Future (New York: Praeger, 1992), p. 62.

<sup>17</sup> Ibid., p. 63.



Tomahawk is well suited to provide that *credible threat* in support of *deterrence*. As a nation, the United States has proven its willingness to use the system and the success of these past engagements has proven the high reliability of the weapon. Even more imperative to the credibility of any weapon system is "access" - can the launch platform reach weapons release range. It is here that Tomahawk has a great advantage over many other systems. The *forward presence* of the United States Navy allows for placing most of the world's land mass well within range of Tomahawk launched from international waters.<sup>18</sup> Basing privileges in theater are not a concern or limitation. Overflight of other nations will require a decision as to whether or not to request such privileges. However, as in Desert Storm with Iran, such permission is not a prerequisite for system utilization.<sup>19</sup> Thus, it is this combination of weapon system capabilities, reliability, a willingness to use it, and access as supported by forward presence that creates in Tomahawk a credible deterrent for support of coercive diplomacy.

#### **Tomahawk in Peace Enforcement Operations**

*Peace Enforcement* is defined as:

The application of military force or the threat of its use, normally pursuant to international

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<sup>18</sup> Anthony Preston, "Naval Lessons Of The Gulf War," Asian Defense Journal, January 1992, p. 65.

<sup>19</sup> Atkinson., p. 16.

authorization, to compel compliance with generally accepted resolutions or sanctions.<sup>20</sup>

An example of using Tomahawk in support of Peace Enforcement Operations was the attack on Zaafaraniya. Zaafaraniya was a research complex southeast of Baghdad allegedly capable of making machinery used to enrich plutonium for nuclear warheads. Iraq had clearly been told to cease all efforts to develop weapons of mass destruction. United Nations inspection teams attempting to monitor compliance with these sanctions had suffered repeated harassment. Finally, on 17 January 1993, United States warships fired more than forty Tomahawk missiles into the plant thereby enforcing compliance.<sup>21</sup> When added to the previously discussed benefits pertaining to escalation control/avoidance and the social dimensions of strategy, selecting Tomahawk for use in support of *Peace Enforcement* operations becomes even more appealing.

#### **Strategic Interdiction - Another Role for Tomahawk**

The operational commander is at war with the enemy's mind. In order to bring the conflict to a desirable end, he must create a sequence of events that portray to the enemy's leadership a futuristic vision of unacceptable costs. *Strategic interdiction* is one means of accomplishing this. It can be viewed as those actions taken to cause *destruction*,

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<sup>20</sup> J. Dan Keirse, "Peace Operations," Lecture, U.S. Naval War College, Newport, RI: 7 February 1995.

<sup>21</sup> Walter M. Locke, "Speak softly and....," Proceedings, October 1994, p. 33.

*delay and disruption, or diversion and demoralization* among enemy forces. Targets chosen for *strategic interdiction* should be interactive so that their destruction creates a synergy. For example:

Attacks on C3 may facilitate other interdiction activities; the restriction of supply may also interfere with enemy mobility, an objective of the highest priority for most observers....The effect of attacks on a limited number of strategic targets may be immediate, despite their depth.<sup>22</sup>

Such effects should create opportunities for the enemy to make wrong decisions and for friendly forces to exploit them.

Clearly, land-based and manned air assets can provide the force to achieve the above. Why then would Tomahawk be a preferred weapon for utilization in strategic interdiction operations? With force reductions or competing priorities limiting the number of such forces available for a specific operation, every asset accrues unto itself a greater relative value. With Tomahawk, there is no need to occupy the ground. The missile can reach over enemy forces to the field to compel a decision. With regards to aircraft, there is a symbiotic relationship between Tomahawk and manned aircraft in that both are vulnerable to enemy air defense assets. Subsequently, Tomahawk (particularly when used with surprise) can be used to initially weaken the enemy's air defensive capabilities which then allows manned aircraft to establish air superiority or

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<sup>22</sup> Ian O. Lesser, Interdiction and Conventional Strategy: Prevailing Perceptions (Santa Monica, CA: RAND), p. vi.

supremacy opening the airways for follow-on Tomahawk missions. The ability of Tomahawk to create *destruction* is clear. *Delay and disruption* can be created by selective targeting such as with the rail and road routes discussed earlier when looking at Tomahawk as a means of supporting Mass. *Diversion* can be highly valuable in enabling the efficacy of subsequent operations. If the enemy believes that Tomahawk will be utilized, they may divert sufficient assets toward defense to create an opportunity for attack elsewhere. Finally, Tomahawk is particularly well suited for *demoralization*. Unless the enemy has either a highly sophisticated air defensive capability or some form of cueing that enables them to focus their anti-air batteries along the Tomahawks flight path, there is little they can do to keep the missile from reaching its target. Such a feeling of "helplessness," of vulnerability to attack at the enemy's whim, will have a demoralizing effect. *Strategic interdiction* can provide tremendous support to the overall success of the campaign and Tomahawk has application to all elements thereof.

## CHAPTER IV

### CONCLUSIONS AND RECOMMENDATIONS

Desert Storm demonstrated the strategic and operational implications that even a relatively simple long-range missile could have. Had Saddam Hussein possessed a system with the accuracy of Tomahawk, the effectiveness of his attacks might have been dramatic enough to drive Israel into active combat. This, in turn, could have caused the collapse of the Arab coalition supporting the operation. The loss of the airfield and seaport facilities in Saudi Arabia would have brought the war effort to its knees. Thus, a single long-range, precision weapon system when properly applied can have dramatic strategic and operational level implications.

The United States National Security Strategy and the National Military Strategy clearly indicate that the United States intends to take an active role in leadership of world affairs. The forward presence mission and their commitment to readiness for crisis response suggest that the military will continue to play an integral role in exerting United States influence throughout the world. Tomahawk, because of its ability to reach the vast majority of potential targets from naval ships operating within international waters, represents a dynamic capability with implications across the spectrum of warfare.

As with all weapon systems, there are limitations to what Tomahawk can do. There are already improvements under

development to address these limitations and further enhance the missile's capabilities.<sup>23</sup> As these improvements come online, the versatility of Tomahawk and its application to a myriad of operations will only further expand. Thus, while these limitations do require consideration when planning the utilization of Tomahawk as part of an operation, the positive capabilities of the system still make it a powerful tool for the commander's use.

Given all of the above, it would behoove any operational commander to ensure that he and his operations staff are fully aware of the capabilities and limitations of the Tomahawk weapon system, and give it serious consideration for use on targets with implications across the spectrum of warfare.

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<sup>23</sup> Barbara Starr, "Smarter Tomahawk Upgrade Planned," Jane's Defense Weekly, 30 January 1993, p. 5.

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